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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,973	05/30/2001	Kenichi Tomioka	500.40168X00	5284

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EXAMINER

SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 06/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/856,973

Applicant(s)

TOMIOKA ET AL.

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefner, Jr. in view of Dershem and (Namba et al. or Japanese Patent Nos. 61-291615 or 2-214741).

Hefner, Jr. (col. 16, Example 3) shows a composition comprising a blend of dicyanates, a bisphenol A epoxy resin and cobalt naphthenate. The teachings are not confined to the example. The use of a polyglycidyl ether of a dicyclopentadiene and phenol condensation product is deemed to be equivalent to the exemplified species of epoxy resin according to column 11, lines 48-49 and 53-54.

Namba et al. (col. 1, lines 21-47) and the Japanese patents ascribe excellent low residual stress after curing, heat resistance, flexibility, moisture resistance, through-hole reliability and high-frequency property to the dicyclopentadiene-phenol epoxy resin of claimed formula (1) (Namba et al., col. 1, beginning from line 54, formula (I) and Japanese Patent No. 2-214741, formula I). It would have been obvious to employ the disclosed dicyclopentadiene-phenol epoxy resin of Hefner, Jr. as the epoxy resin in order to impart excellent low residual stress after curing, heat resistance, flexibility, moisture resistance, through-hole reliability and high-frequency property according to Namba et al. and the Japanese patents.

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The claimed curing accelerator (C)(2) "having a catalytic function to accelerate the curing reaction of the epoxy resin" such as an imidazole (claim 2) is not recited. Dershem (col. 1, lines 24-30) espouses a formulation containing a polycyanate, an epoxy monomer wherein aromatic polyglycidyl ethers are preferable (col. 5, lines 4-9), metal catalysts, "catalysts for curing the epoxy monomers (col. 7, lines 26-28)" such as preferably imidazoles, and an antioxidant (col. 8, line 42).

It would have been obvious to incorporate an imidazole curing catalyst of Dershem et al. to cure the epoxy resin of Hefner, Jr. in order to obtain a uniformly and completely cured product.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaku et al. in view of Dershem and (Namba et al. or Japanese Patent Nos. 61-291615 or 2-214741).

Gaku et al. (col. 1, lines 46-68) sets forth a blend of polycyanate ester, epoxy resins "employed as laminates, rigid resin molds or electronic materials in the prior art (col. 6, lines 17-20)" and curing catalysts including imidazoles and cobalt naphthenate (col. 6, lines 55 and 63). The claimed dicyclopentadiene-phenol epoxy resin is not recited.

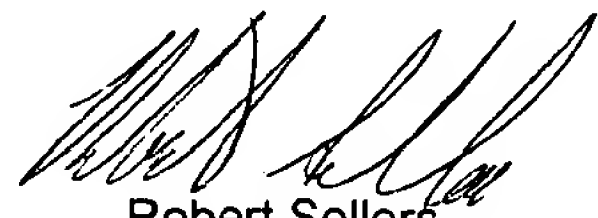
It would have been obvious to utilize the dicyclopentadiene-phenol epoxy resin of Namba et al. or the Japanese patents as the epoxy resin of Gaku et al. in order to impart excellent low residual stress after curing, heat resistance, flexibility, moisture resistance, through-hole reliability and high-frequency property.

A mixture of an imidazole within the confines of curing accelerator (C)(2) "having a catalytic function to accelerate the curing reaction of the epoxy resin" with cobalt naphthenate is not recited. It would have been obvious to combine the cobalt naphthenate of Gaku et al. with the disclosed imidazole based on the teaching in Dershem that mixtures of metal catalysts and imidazoles are useful to cure polycyanate/epoxy resin compositions.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dershem in view of Namba et al. or Japanese Patent Nos. 61-291615 or 2-214741.

The references are described hereinabove. Dershem is open to the use of aromatic polyglycidyl ethers in general, although the claimed species of dicyclopentadiene-phenol epoxy resin is not recited. It would have been obvious to utilize the dicyclopentadiene-phenol epoxy resin of Namba et al. or the Japanese patents as the aromatic polyglycidyl ether of Dershem in order to impart excellent low residual stress after curing, heat resistance, flexibility, moisture resistance, through-hole reliability and high-frequency property.

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